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| REVISION HISTORY | | | |
|------------------|---|------------|----------------|
| REV | Description of Change | Author | Effective Date |
| 0 | Initial Release | M. Hines | 6/11/98 |
| 1 | Clarifications based on 7/98 DNV Audit and 6/98 Internal Audit (see DCR 98-025). Major rewrite. | M. Hines | 9/23/98 |
| 2 | Clarifications based on 11/98 DNV Audit (DCR 98-062) | R. Serrano | 12/18/98 |

| REFERENCE DOCUMENTS | |
|---------------------|--|
| Document Number | Document Title |
| 53.ARC.0000 | Ames Research Center Quality Manual, Section 4.9 |
| 53.ARC.0003 | Acceptance and Amendment of Customer Agreements |
| 53.ARC.0004.1 | Project Management for the Design, Development, and Maintenance of Software |
| 53.ARC.0004.2 | Design and Development of Systems and Hardware |
| 53.ARC.0009.2.1 | Work Instruction for the Publication and/or Presentation of Research Results |
| 53.ARC.0011 | Control of Inspection, Measuring, and Test Equipment |
| 53.ARC.00016 | Quality Records |

Documents referenced in this procedure are applicable to the extent specified herein.

1. Purpose

This procedure provides general requirements that must be addressed in lower-level procedures for the management and performance of research in accordance with the Ames Research Center (ARC) Quality Manual.

2. Scope

This procedure applies to organizations that manage and perform research which results in research products for delivery to ARC customers. This procedure covers the management and performance of research from the identification of research opportunities to the delivery of research products.

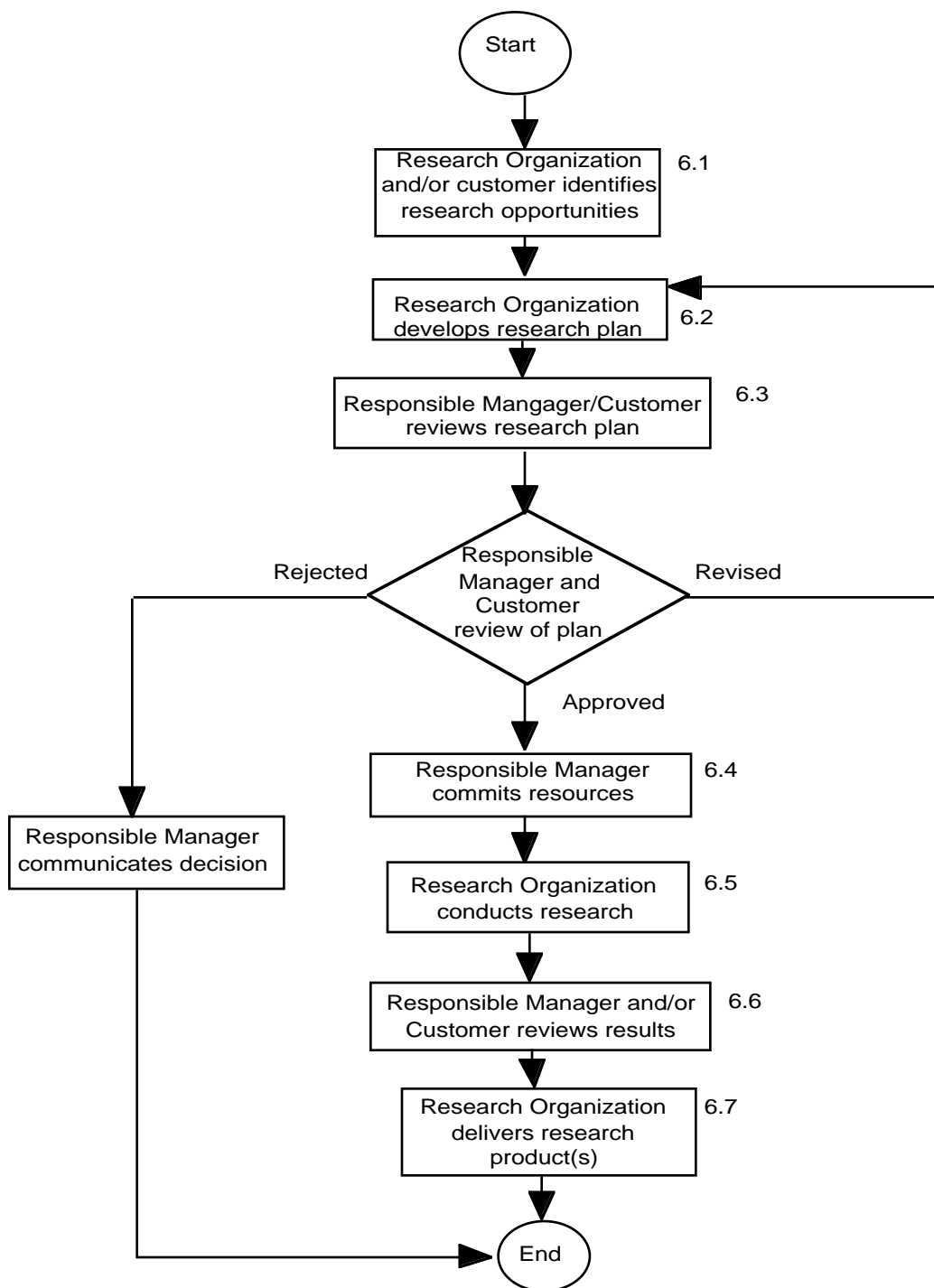
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3. Definitions and Acronyms

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| 3.1 | Customer Requirements | Requirements received from any customer for products or services. Customer requirements for research products may include, but are not limited to, Cooperative Agreement Notices (CAN), Announcements of Opportunity (AO), NASA Research Announcements (NRA), Task Agreements (TA), program/project plans, and specifications. |
| 3.2 | Researcher | Person responsible for preparing the research plan and activities, conducting the research, and documenting and/or presenting the results |
| 3.3 | Research Organization | Organization that performs research. A research organization can be composed of both ARC personnel and personnel from external organizations and may include one or a combination of researchers, research teams, and/or organizational line management. |
| 3.4 | Research Plan | Documents developed to plan research activities and to describe the scientific and/or technical objectives, the deliverables, and the resources needed. Research plans include, but are not limited to, research proposals and research-related portions of program/project plans (i.e., task plans). |
| 3.5 | Research Product | Products such as scientific and technical publications, data, research results, and associated prototype hardware and software |
| 3.6 | Responsible Manager | Person having the responsibility and authority to accomplish/implement a specific activity or process (includes organizational line managers, project managers, etc.) |



4. Flowchart



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5. Responsibilities

5.1 Responsible Manager shall:

- ensure research is relevant to and consistent with ARC roles and missions,
- ensure research plan addresses customer requirements, as well as personnel, cost, and other resource requirements,
- approve or disapprove the research plan,
- conduct periodic reviews of research activities, and
- ensure NF 1676 and ARC 310 are completed, as appropriate.

5.2 Research Organization shall:

- conduct research using acceptable scientific methodologies and practices in the related field and in accordance with the research plan, and
- follow the appropriate ARC policies and procedures established in the ARC Quality System.

6. Procedure

6.1 Identify Research Opportunities

Research Organization and/or external customer identifies research opportunities consistent with ARC roles and missions.

6.2 Develop Research Plan

Researcher and/or research team reviews customer requirements and writes the research plan in accordance with customer requirements and applicable procedures, addressing the following elements as appropriate **based on the type of research, risk, cost, criticality, special circumstances or processes, and other factors:**

- Research objective
- Research approach
- Schedule/milestones
- Resources
- Budget
- Product deliverables
- Equipment and suitable work environment
- Compliance with standards and codes
- Process monitoring methods/procedures
- Applicable Quality System procedures and work instructions (e.g., 53.ARC.0004.1 and 53.ARC.0004.2)

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6.3 Review Research Plan

The Responsible Manager and, as appropriate, the customer shall review the research plan, considering customer requirements and organizational resources. The Responsible Manager shall do one of the following:

6.3.1 Approve the plan and commit appropriate resources, or

6.3.2 Revise and return the plan to the Research Organization with recommendations for changes, or

6.3.3 Reject the plan and communicate this decision to the Research Organization and to the customer, as applicable.

Note: If the research proposal/plan is combined with a documented form of customer acceptance (e.g., customer letter of acceptance, NF 506A "Resources Authority Warrant," etc.), then the research proposal/plan combined with the documented form of customer acceptance shall be considered a customer agreement and handled in accordance with 53.ARC.0003 and shall be considered a Quality Record and handled in accordance with 53.ARC.0016.

6.4 Commit Resources

The Responsible Manager shall commit organizational resources identified in the research plan.

6.5 Conduct Research

The Research Organization shall:

6.5.1 Conduct research using acceptable scientific methodologies and practices in the related field and in accordance with the research plan.

6.5.2 Follow the appropriate ARC policies and procedures established in the ARC Quality System.

6.5.3 Keep appropriate scientific evidence of research activities.

6.5.4 Ensure that equipment used to verify results or measure conformance is calibrated in accordance with 53.ARC.0011 as appropriate.

6.6 Review Results

The Responsible Manager and, if required by the research plan, the customer shall review the research results for delivery to the customer.

6.7 Deliver Research

The Research Organization shall deliver research product(s) in accordance with customer requirements and, if appropriate, in accordance with 53.ARC.0009.2.1.

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7. Metrics

There are no metrics required for this document.

8. Quality Records

The following Quality Records shall be generated and managed in accordance with 53.ARC.0016.

| Required Record | Custodian |
|---|---------------------|
| Research Proposal/Plan combined with the documented form of customer acceptance | Responsible Manager |
| Scientific and Technical Document Availability Authorization (the signed NF 1676) | Responsible Manager |
| Review and Authorization Form for Papers to be Published (ARC 310) | Responsible Manager |

9. Form(s)

There are no forms required for this document.